MATH 302, Statistics, Syllabus (3 credits)

COURSE DESCRIPTION

This course focuses on research methodologies, statistical analyses, and the appropriate use of statistical methods, with primary emphasis on the ability to read and understand research. Prerequisite: MATH 103 College Mathematics (MATH 110 College Algebra recommended).

REQUIRED TEXTS & RESOURCES

Brase, C. H. (2018).*Understandable Statistics: Concepts and Methods 12thed*.Cengage Learning, Boston, MA.ISBN: 978-1-337-11991-7

WebAssign (an introduction to WebAssign is included in the Course Introduction Video). Please contact the bookstore to access the textbook and WebAssign access code.

NOTE: The Point University Bookstore may offer the textbook(s) for this course in other formats. Information can be found atwww.pointuniversityshop.com

COURSE SCHEDULE

Each course begins on a Wednesday with a Getting Started module before moving into the week 1-7 content. The introduce yourself forum is required during the Getting Started module in order to be counted present during this half-week of instruction. The introduce yourself forum is open from the start of the course to the first Sunday. All posts are due by Sunday at 11:59 p.m. Participation is required to be marked present for this time period. Keep in mind that in future weeks, forum due dates may be different.

Unless stated otherwise, graded assignments are due on the last day of the course week (Sunday). http://point.edu/course-schedules/

Learning Activities	Assignment Due Days	
Week 1		
	Math Exploration of the Week #1 Forum "How do you see statistics?" (20 points)	Part 1: Thursday Part 2: Sunday

	Read Chapter 1: Sampling and Data Study linked resources	Friday
	WebAssign HW1 Sampling (50 points)	Sunday
	Application Activity "What is Statistics?" (30 points)	Sunday
Week 2		
	WebAssign Ch1 Quiz (50 points)	Wednesday
	Math Exploration of the Week #2 Forum "Analyzing Graphs" (20 points)	Part 1: Thursday Part 2: Sunday
	Read Sections 2.1 and 2.2 in Chapter 3: Descriptive Statistics Study linked resources	Friday
	WebAssign HW2A Charts (50 points)	Sunday
	Application Activity: "What is a Statistical Question" (30 points)	Sunday
Week 3		
	Math Exploration of the Week #3 Forum "What would you research?" (20 points)	Part 1: Thursday Part 2: Sunday
	Read Sections 2.3, 2.4, and 2.5 in Chapter 2: Descriptive Statistics Study linked resources	Thursday
	WebAssign HW2B Central Measures (50 points)	Sunday
	Application Activity: "Creating and Interpreting Histograms" (30 points)	Sunday
Week 4		
	WebAssign Ch2 Quiz (50 points)	Wednesday
	Read Chapter 3: Probability Topics Study linked resources	Thursday
	WebAssign HW3 Probability (50 points)	Sunday
	Application Activity: "M&M Probability" (30 points)	Sunday
Week 5		
	WebAssign Ch3 Quiz (50 points)	Wednesday
	Math Exploration of the Week #5 Forum "Why do you need statistics and data?" (20 points)	Part 1: Thursday

		Part 2: Sunday
	Read Chapter 4: Discrete Random Variables Read Chapter 5: Continuous Random Variables Study linked resources	Thursday
	WebAssign HW4/5 Random Variables (50 points)	Sunday
Week 6		
	WebAssign Ch4/5 Quiz (50 points)	Wednesday
	Read Chapter 6: Normal Distribution Study linked resources	Thursday
	WebAssign HW6 Normal Distribution (50 points)	Thursday
	Application Activity: "Interpreting Box Plots" (30 points)	Sunday
Week 7		
	Math Exploration of the Week #7 Forum (20 points)	Part 1: Thursday Part 2: Sunday
	Read Chapter 7: The Central Limit Theorem Study linked resources	Thursday
	MATH 117 FINAL (100 points)	Sunday
	Application Activity: Understanding Distributions of Data (30 points)	Sunday

GRADING POLICIES

Course Evaluation Plan
An assessment instrument (checklist, rubric, quiz, etc.) will accompany each major graded assignment. See the instructions for specific assignment criteria and accompanying grading instruments.

Points Distribution
Graded assignments will be distributed as follows:

Graded Assignments	Points Possible
Math Exploration of the Week (MEOW) Forums (5 x 20 pts)	100
Homework (6 x 50 pts)	300
Application Activities (6 x 30 pts)	180
Quizzes (4 x 50 pts)	200
Final (100 pts)	100
TOTAL	**880**

Final Grades

The following scale will be used when calculating final grades:

A	90-100%	D	60-69%
B	80-89%	F	0-59%
C	70-79%		

Final grades will be posted according to the Academic Calendar:
http://point.edu/academic-calendar/

COURSE LEARNING GOALS & OBJECTIVES

TIME REQUIREMENTS & COMMITMENTS
This course is 3 credit hours. Regarding time on task, students can expect to spend approximately 16 hours per week respectively.

COURSE GOALS AND OBJECTIVES		Program Objective(s)
Goal 1: Students will apply various types of sampling methods to data collection.		
	Objective 1.1: Students will understand the difference between qualitative data and quantitative data.	1.2,1.4,1.5,1.8
	Objective 1.2: Students will construct and interpret frequency tables.	1.2,1.4,1.5,1.8
	Objective 1.3: Students will compare sampling techniques.	1.2,1.4,1.5,1.8
	Objective 1.4: Students will understand experimental design and sampling.	1.2,1.4,1.5,1.8
	Objective 1.5: Students will solve application problems.	1.2,1.4,1.5,1.8,2.4
Goal 2: Students will learn how to calculate and interpret numerical measurements and graphs.		
	Objective 2.1: Students will display data graphically and interpret graphs: stem plots, histograms, and box plots.	1.2,1.4,1.5,1.8
	Objective 2.2: Students will recognize, describe, and calculate the measures of location of data: quartiles and percentiles.	1.2,1.4,1.5,1.8
	Objective 2.3: Students will recognize, describe, and calculate the measures of the center of data: mean, median, and mode.	1.2,1.4,1.5,1.8
	Objective 2.4: Students will recognize, describe, and calculate the measures of the spread of data: variance, standard deviation, and range.	1.2,1.4,1.5,1.8
	Objective 2.5: Students will solve application problems.	1.2,1.4,1.5,1.8,2.4
Goal 3: Students will learn how to solve probability problems using a systematic approach.		
	Objective 3.1: Students will understand and use the terminology of probability.	1.2,1.4,1.5,1.8
	Objective 3.2: Students will determine whether two events are mutually exclusive and whether two events are independent.	1.2,1.4,1.5,1.8

	Objective 3.3: Students will calculate probabilities using the Addition Rules and Multiplication Rules.	1.2,1.4,1.5,1.8
	Objective 3.4: Students will construct and interpret Contingency Tables, Venn Diagrams, and Tree Diagrams	1.2,1.4,1.5,1.8
	Objective 3.5: Students will solve application problems.	1.2,1.4,1.5,1.8,2.4
Goal 4: Students will recognize and understand discrete probability distribution functions.		
	Objective 4.1: Students will Calculate and interpret expected values.	1.2,1.4,1.5,1.8
	Objective 4.2: Students will recognize the various probability distributions and apply them appropriately.	1.2,1.4,1.5,1.8
	Objective 4.3: Students will classify discrete word problems by their distributions.	1.2,1.4,1.5,1.8
	Objective 4.4: Students will solve application problems.	1.2,1.4,1.5,1.8,2.4
Goal 5: Students will recognize and understand continuous probability density functions		
	Objective 5.1: Students will recognize the uniform probability distribution and apply it appropriately.	1.2,1.4,1.5,1.8,2.4
	Objective 5.2: Students will recognize the exponential probability distribution and apply it appropriately	1.2,1.4,1.5,1.8,2.4
Goal 6: Students will create and interpret probability distributions.		
	Objective 6.1: Students will apply normal probability distributions.	1.2,1.4,1.5,1.8
	Objective 6.2: Students will apply standard normal probability distributions.	1.2,1.4,1.5,1.8
	Objective 6.3: Students will compare normal probabilities by converting to the standard normal distribution.	1.2,1.4,1.5,1.8
	Objective 6.4: Students will solve application problems.	1.2,1.4,1.5,1.8,2.4
Goal 7: Students will understand and interpret central limit theorem.		
	Objective 7.1: Students will recognize central limit theorem problems.	1.2,1.4,1.5,1.8
	Objective 7.2: Students will classify continuous word problems by their distributions.	1.2,1.4,1.5,1.8
	Objective 7.3: Students will apply and interpret the central limit theorem for means.	1.2,1.4,1.5,1.8
	Objective 7.4: Students will apply and interpret the central limit theorem for sums.	1.2,1.4,1.5,1.8
	Objective 7.5: Students will solve application problems.	1.2,1.4,1.5,1.8,2.4
Goal 9: Students will engage in effective discussions about mathematics		
	Objective 8.1: Students will present solutions of application problems	1.4,1.6
	Objective 8.2: Students will solve problems posted online and comment on solutions	1.4,1.6,1.7
	Objective 8.3: Students will discuss past and current attitudes about mathematics	1.1, 1.6
	Objective 8.4: Students will develop a plan to achieve academic success in mathematics.	1.1, 1.2, 1.6

DISABILITY SERVICES

Point University is committed to providing qualified students with disabilities an equal opportunity to access a Point education through the provision of reasonable and appropriate accommodations and support services. Accordingly, Point complies with Title IX (https://point.edu/title-ix) of the Educational Amendments of 1972 and the subsequent reauthorization of that act, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990 and subsequent amendments to that act. For more information about Disability Support Services, see the "Consumer Information" section of the website (http://point.edu/disclosures) and the "Student Services" section of this catalog, or contact the Director of Disability Services and College Section 504 Coordinator, at disability.services@point.edu.

COURSE EXPECTATIONS

Attendance
A student is expected to actively participate in each week of the class in which he or she is enrolled. Active participation each academic week includes submitting classwork in one or more of the following activities within the course during the week they are due: discussion forums, assignments such as (but not limited to) projects, papers, presentations, case studies, quizzes, or exams. Students may be absent up to 25% of the class. After absences exceed 25% of the session or term's total – in either consecutive or cumulative days – the student will be withdrawn from the class roster and assigned a grade on the basis of work completed at the time of withdrawal unless, because of exceptional circumstances, prior arrangements have been made with the professor and the Chief Academic Officer.

Students representing the university, such as student-athletes, remain responsible for submitting work online within the week it is due to be counted present. No student will be disadvantaged while representing the university. However, the responsibility is on the student to notify faculty no later than one week before missing class for any reason, to ensure time for content to be made available to them and for make-up work to be considered and arranged. It is expected that students will limit their absences outside of these required absences, as they will be dropped if they overcut the allowed number of absences.

The full attendance policy is found in the catalog (https://point.edu/catalogs/).

Etiquette & Netiquette
Students are expected to be respectful and well-mannered towards the instructor and their peers, whether in the physical classroom or the online course site. For guidance on meeting this expectation, particularly in the online environment, please see the materials provided during student orientation or reach out to advising.center@point.edu.

Policies
For academic policies governing attendance, late assignments, and student support, please refer to the Academic Catalog directly (https://point.edu/catalogs/).